

REMARKS

Information Disclosure Statement

An Information Disclosure Statement is being filed concurrently with this Preliminary Amendment. The IDS includes the non patent literature documents filed with the IDS dated 09/15/03.

Double Patenting Rejections

Claims 57-58 and 60-82 have been rejected under judicially created double patenting over claims 1-19, 21, 23, 26-27, 29-31 and 34-35 of US Patent No. 6,384,487.

Claims 57-58 and 60-82 have been rejected under judicially created double patenting over claims 1, 6-8, 13-14, 18 and 20 of US Patent No. 6,700,210.

In response to these rejections, Terminal Disclaimers are being filed concurrently with this Amendment. The Terminal Disclaimers disclaim the terminal portion of any patent granted in the present application past the expiration dates of US Patent Nos. 6,384,487 and 6,700,210.

35 USC §102 and 35 USC §103 Rejections

Claims 57-58 and 60-61, 63-72, 74-75 and 77-82 have been rejected under 35 USC §102(b) as being anticipated by Kennedy (US Patent No. 3,778,685).

Claims 62, 73 and 76 have been rejected under 35 USC §103(a) as being unpatentable over Kennedy (US Patent No. 3,778,685) in view of Inaba (US Patent No. 6,093,958).

Summary Of The Invention

Claims 57-58 and 60-82 are directed to a semiconductor package. It is noted that the claims are misnumbered as

there is no claim 59. However, in order to avoid confusion with the rejections, the numbering error has not been corrected.

As shown in Figure 2E, the package 16 includes a die 32, a lead frame 28 attached to the die 32, and a plastic body 18 encapsulating the die 32 and the lead frame 28. The package 16 also includes a first polymer member (inner member 42) encapsulating the die 32, and a second polymer member (outer member 44) encapsulating the first polymer member (inner member 42). In addition, the first polymer member and the second polymer member are configured to adjust a selected characteristic of the package, such as rigidity, bow or warpage.

Argument

The claims have been amended to include recitations which further distinguish the invention from the prior art. In particular, each of the independent claims includes additional recitations which are not disclosed or suggested by the Kennedy package, or the by combination of the Kennedy and Inaba packages.

Amended independent claim 57 recites "the first polymer member having a selected geometry configured to provide substantially equal volumes of the second polymer member on either side of the leadframe". Antecedent basis for this recitation is contained on page 6, lines 9-12 and page 11, lines 16-20 of the specification.

This feature is not disclosed, suggested or inherent in the Kennedy package. In this regard, Kennedy discloses a package assembly 10 comprising a lead frame array 11, an IC chip 12, a rubbery potting compound 13 and an outer molded plastic cover 14. As shown in Figure 2 of Kennedy,

the plastic cover 14 is asymmetrical, and has a greater volume of material on an upper side of the lead frame array 11 relative to the lower side thereof.

Further, Kennedy states at column 3, lines 58-60: "After bonding, the rubbery potting compound is applied to cover the chip and bonded land area. Normally, one drop of liquid polymer is sufficient for this purpose." In the Kennedy package 10, the purpose of the potting compound 13 is to encapsulate the chip 12 and bonded land area on the lead frame array 11, and volume equalization of the plastic cover 14 is not a consideration.

Amended independent claim 65 recites "the first polymer member having a selected geometry and at least one filler configured to provide a selected characteristic for the package". Antecedent basis for this recitation is contained on page 13, lines 15-20 of the specification. Kennedy does not disclose or suggest fillers in the potting compound 13, but rather teaches "a high purity, space-grade silicone rubber" (column 3, line 15). Although fillers have heretofore been used in plastic semiconductor packages, the present package includes "a first polymer member" having a "filler" in combination with "a second polymer member encapsulating the first polymer member". Further, the teaching of a high purity compound in the Kennedy potting compound 13 would in effect "teach away" from the use of fillers.

Amended independent claim 71 recites "the plastic body having a first portion on the first side having a first volume and a second portion on the second side having a second volume". Claim 71 also recites "the polymer member configured to equalize the first volume and the second volume". Antecedent basis for these recitations is

contained on page 11, lines 16-23 of the specification. In the Kennedy package 10, the plastic cover 14 does not have the structure of the present plastic body 18 (i.e., equal volumes of material on either side of leadframe), and the potting compound 13 does not have the structure and function of the present polymer member (i.e., volume equalization).

Amended independent claim 78 recites "a first polymer member on the die or the leadframe including a filler", and recites "the first polymer member and the filler configured to provide a selected characteristic in the second polymer member". Antecedent basis for these recitations is contained on page 13, lines 15-20 of the specification. Although fillers are known in the art, the present package employs a filler in a first polymer member (molded inner member 42) which functions to adjust a characteristic (e.g., rigidity) of a second polymer member (molded outer member 44).

Inaba was cited as teaching a tape material 4 in a semiconductor package. However, the tape material 4 performs an adhesive function (column 2, lines 40-43), and there is no suggestion of the tape material 4 performing a volume equalizing function, as recited in amended independent claims 57 and 71.

Conclusion

In view of the amendments and arguments, favorable consideration and allowance of claims 57-58 and 60-82 is respectfully requested. Should any issues arise that will advance this case to allowance, the Examiner is asked to contact the undersigned by telephone.

DATED this 18th of June, 2004.

Respectfully submitted:



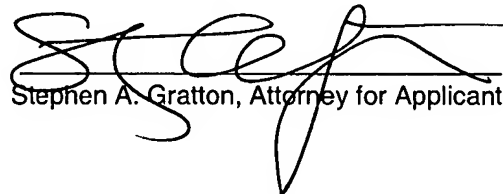
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June 18, 2004
Date of Signature



Stephen A. Gratton, Attorney for Applicant